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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,498	08/08/2006	Niall Finn	03164.0190USWO	4582

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EXAMINER	
KIM, HEE-YONG	

ART UNIT	PAPER NUMBER
2482	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/551,498	FINN ET AL.	
	Examiner	Art Unit	
	HEE-YONG KIM	2482	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 August 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13, and 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-13 and 16* is/are rejected.

7)☒ Claim(s) *9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in reply to Applicant's Response dated August 13, 2010.

2. **Claims 1, 3, 6, 8-9, and 16** have been amended.

3. **Claims 14-15, and 17-26** have been cancelled.

Response to Arguments

4. Regarding rejection of **claim 13** under 35 U.S.C. 112, second paragraph applicant's argument is persuasive in clearing previous rejection. However, examiner still rejects claim 13 under 35 U.S.C. 112, second paragraph for the other reason as shown below.

5. Applicant's arguments with respect to the prior art rejection over **claims 1-16** have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claim 13** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **claim 13**, it recites "approximately 50mm" which is indefinite because it fails to describe the range clearly.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. **Claims 1-8, 10, 13,** and **16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bridges (US 3,835,332) in view of Bercovitz (US 4,922,109), further in view of Tubb (5,263,700), hereafter referenced as Bridges and Bercovitz and Tubb respectively.

Regarding **claim 1**, Bridges and Bercovitz and Tubb disclose Inspection Apparatus for Detecting Defects in a Web. Specifically Bridges and Bercovitz and Tubb disclose Apparatus for measuring uniformity of a laminar material (Fig.1 web inspection apparatus) as the material is delivered (coated web moves past inspection station, col.4, line 24-25) from a laminar material delivery machine (inherent in Bridges), the apparatus comprising:

a measurement rig (light source and photosensors, Fig.1) arranged across the width of the laminar material (see Fig.1), the measurement rig carrying:

a linear array of light sources (light source L1, L2, ..,Fig.1) arranged to direct light onto the laminar material; and

a linear array of optical sensors (Photosensors D1,D2,.., Fig.1), each optical sensor being paired with a light source (photosensors aligned with light sources, col.4, line 24-27) and being configured to receive light reflected by the laminar material (reflected from the coated web, col.3, line 39-46) from at least the light source (light energy that they receive from LED's (light source), col.5, line 1-2) with which it is paired and to thereafter produce a signal indicative of the amount of reflected light it receives (converting the intensity of light reflected from the coated web into signal, col.3, line 38-47); and

a processor (test unit 6 at Fig.1) for receiving signals (A/D conversion, Fig.4) from each of the optical sensors and processing each of the signals (Fig.4) to produce measures of uniformity (uniformity of web density, col.1, line 36-37) of the linear material for each optical sensor, whereby said apparatus produces measures of uniformity related to spaced apart locations (uniformity of web density, col.1, line 36-37) across the width of the laminar material (Array of Light sources and Detectors are across the width of web, see Fig.1).

However, Bridges fails to disclose a sheet of transparent material between the linear array of light sources and the laminar material; wherein the measurement rig is mounted and configured to be lifted relative to the laminar material to perform a calibration, and wherein in the calibration the processor processes signals corresponding to light reflected from the light sources by the sheet of transparent material to produce a calibration measure.

In the analogous field of endeavor, Bercovitz discloses Device for Recognizing Authentic Documents Using Optical Modulas. Bercovitz specifically teaches a sheet of transparent material (plate with pre-determined reflectivity, col.5, line 11-20) between the linear array of light sources (light source, col.5, line 11-20) and the laminar material (paper, col.5, line 11-20); wherein in the calibration the processor (evaluation device, col.6, line 3) processes signals corresponding to light reflected from the light sources by the sheet of transparent material to produce a calibration measure (calibration is effected by measurement of intensity of the reflected light of light source, col.5, line 11-20), in order to calibrate the sensitivity of individual sensors (col.5, line 11-20).

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Bridges by providing a sheet of transparent material between the linear array of light sources and the laminar material; wherein in the calibration the processor processes signals corresponding to light reflected from the light sources by the sheet of transparent material, in order to calibrate the sensitivity of individual sensors. However, Bridges and Bercovitz still fail to disclose wherein the measurement rig is mounted and configured to be lifted relative to the laminar material to perform a calibration.

In the analogous field of endeavor, Tubb discloses Feeding of Flexible Sheets. Tubb specifically disclose rail (equivalent to *measurement rig*, col.5, line 26-30) is raised during *calibration* cycle, in order to allow shutter drive (equivalent to *laminar material*, col.5, line 26-30) out of rig.

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Bridges and Bercovitz by providing wherein the measurement rig is mounted and configured to be lifted relative to the laminar material, in order to perform a calibration without laminar material. The Bridges web inspection apparatus, incorporating the Bercovits calibration using the sheet of transparent material between light sources and laminar material, further incorporating the Tubb measurement rig mounted and configured to be lifted relative to the laminar material to perform a calibration, has all the features of claim 1.

Regarding **claim 2**, Bridges and Bercovitz and Tubb disclose everything claimed as applied above (see claim 1). Bridges further discloses wherein each light source and optical sensor pair are arranged with their major optical axes substantially perpendicularly tot he direction of travel of the laminar material (see Fig.1, the optical axis is perpendicular to the direction of the web).

Regarding **claim 3**, Bridges and Bercovitz and Tubb disclose everything claimed as applied above (see claim 2). Bridges further discloses wherein said major optical axes of each light source and optical sensor pair are offset to perpendicular such that they intersect at the laminar material, with the bisector of their optical axes being perpendicular to the laminar material (see Fig.1, the optical axis is perpendicular to the web plane).

Regarding **claim 4**, Bridges and Bercovitz and Tubb disclose everything claimed as applied above (see claim 1). Bridges further discloses wherein said 35 light sources are light emitting diodes (LEDs) (LED's, col.4, line 38).

Regarding **claim 5**, Bridges and Bercovitz and Tubb disclose everything claimed as applied above (see claim 1). Bridges further discloses wherein said processor is configured to obtain a signal indicative of the amount of light received at each optical sensor at predetermined intervals (photosensors output signal generated during the scanning, col.5, line 23-24).

Regarding **claim 6**, Bridges and Bercovitz and Tubb disclose everything claimed as applied above (see claim 5). Bridges further discloses wherein the outputs of the sensors are read sequentially by said processor to thereby produce a raster scan of the laminar material, and wherein the laminar material is a textile web (a sequence of digital codes D_1' through D_n' appear at the output of analog to digital converter during each scan, col.5, line 6-12).

Regarding **claim 7**, Bridges and Bercovitz and Tubb disclose everything claimed as applied above (see claim 4). Bridges further discloses wherein said measurement rig excites said LEDs individually (LED's are sequentially pulsed, col.5, line 6-12) and the signal (a sequence of digital codes D_1' through D_n' appear at the output of analog to digital converter during each scan, col.5, line 6-12) from each optical sensor corresponds to the period (inherent in pulsed LED) during which the optical sensors paired LED is excited (pulsed).

Regarding **claim 8**, Bridges and Bercovitz and Tubb disclose everything claimed as applied above (see claim 6). However, Bridges fails to disclose wherein the predetermined interval between scans is chosen so that the distance the laminar material travels between scans matches the separation between adjacent sensors.

Bridges discloses that linear array of photosensors detect light during scan. Therefore, each sensor covers the distance same as the separation between adjacent sensors in one direction during the scan. However, in the other direction (perpendicular to the former direction) the web advances during scan and sensor has to cover whatever distance it advances. Therefore, there is a motivation to cover the same distance during scan in both directions to equalize the resolutions.

Therefore, given this motivation, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Bridges and Bercovitz and Tubb by providing wherein the predetermined interval between scans is chosen so that the distance the web travels between scans matches the separation between adjacent sensors, in order to cover the same distance during scan in both direction to equalize the resolutions. The Bridges web inspection apparatus, incorporating the Bercovits calibration using the sheet of transparent material between light sources and laminar material, further incorporating the Tubb measurement rig mounted and configured to be lifted relative to the laminar material to perform a calibration, further incorporating wherein the predetermined interval between scans is chosen so that the distance the web travels between scans matches the separation between adjacent sensors, has all the features of claim 8.

Regarding **claim 10**, Bridges and Bercovitz and Tubb disclose everything claimed as applied above (see claim 1). However, Bridges fails to disclose wherein the measurement rig comprises a mounting block within which the light sources and the optical sensors are mounted.

However, the examiner maintains that it was well known in the art to provide wherein the measurement rig comprises a mounting block within which the light sources and the optical sensors are mounted, in order to have evenly distributed light source and detector pairs. The Bridges web inspection apparatus, incorporating the Bercovits calibration using the sheet of transparent material between light sources and laminar material, further incorporating the Tubb measurement rig mounted and configured to be lifted relative to the laminar material to perform a calibration, further incorporating mounting block within which the light sources and the optical sensors are mounted, has all the features of claim 10.

Regarding **claim 13**, Bridges and Bercovitz and Tubb disclose everything claimed as applied above (see claim 2). However, Bridges and Bercovitz and Tubb fail to disclose wherein the optical axes of the light sources and sensors intersect approximately 50 mm below the measurement rig.

However, it is a design parameter wherein the optical axes of the light sources and sensors intersect approximately 50 mm below the measurement rig.

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Bridges and Bercovitz and Tubb by providing wherein the optical axes of the light sources and sensors intersect approximately 50 mm below the measurement rig, as a design alternative. The Bridges web inspection apparatus, incorporating the Bercovits calibration using the sheet of transparent material between light sources and laminar material, further incorporating the Tubb measurement rig mounted and configured to be lifted relative to the laminar material to

perform a calibration, further incorporating wherein the optical axes of the light sources and sensors intersect approximately 50 mm below the measurement rig , has all the features of claim 13.

Regarding **claim 16**, Bridges and Bercovitz and Tubb disclose everything claimed as applied above (see claim 1). Bridges further discloses wherein said processor is configured to produce a measure of uniformity in the form of a measure of web aerial density (uniformity of web density, col.1, line 36-37) whereby said apparatus is configured to produce measures of uniformity for a laminar material which is a textile web (inspecting a web, col.3, line 19-21).

10. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Bridges in view of Bercovitz, further in view of Tubb, and further in view of Kedar (US 5,665,975).

Regarding **claim 11**, Bridges and Bercovitz and Tubb disclose everything claimed as applied above (see claim 10). However, Bridges fails to disclose wherein the optical sensors are mounted within individual holes and set back from an aperture of their respective hole which faces the laminar material.

In the analogous field of endeavor, Kedar discloses Optical Detector Including an Optical Alignment Block and Method. Specifically Kedar discloses wherein the optical sensors are mounted within individual holes and set back from an aperture of their respective hole (Fig. 10B), in order to securely fastening of optical sensors (col.13, line 15-24).

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Bridges and Bercovitz and Tubb by providing wherein the optical sensors are mounted within individual holes and set back from an aperture of their respective hole which faces the laminar material, in order to securely fastening of optical sensors. The Bridges web inspection apparatus, incorporating the Bercovits calibration using the sheet of transparent material between light sources and laminar material, further incorporating the Tubb measurement rig mounted and configured to be lifted relative to the laminar material to perform a calibration, further incorporating mounting block within which the light sources and the optical sensors are mounted, further incorporating mounting optical sensor within individual holes and set back from an aperture of their respective hole, has all the features of claim 11.

11. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Bridges, in view of Bercovitz, further in view of Tubb, and further in view of Wohlrab (US 4,017,178).

Regarding **claim 12**, Bridges and Bercovitz and Tubb disclose everything claimed as applied above (see claim 10). However, Bridges fails to disclose wherein the light sources are mounted within an elongate slot extending the length of the mounting block whereby light sources may provide illumination for optical sensors adjacent to the optical sensor with which they are paired.

In the analogous field of endeavor, Wohlrab discloses Apparatus for Detecting a Malfunction in a Color Connecting Light Valve of a Film Printer. Specifically Wohlrab

discloses the light sources mounted within an elongate slot extending the length of the mounting block (col.5, line 47-52), in order to maintain the slides between respective sensors (abstract).

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Bridges and Bercovitz and Tubb by providing wherein the light sources are mounted within an elongate slot extending the length of the mounting block whereby light sources may provide illumination for optical sensors adjacent to the optical sensor with which they are paired, in order to securely maintain the slides between respective sensors. The Bridges web inspection apparatus, incorporating the Bercovits calibration using the sheet of transparent material between light sources and laminar material, further incorporating the Tubb measurement rig mounted and configured to be lifted relative to the laminar material to perform a calibration, further incorporating mounting block within which the light sources and the optical sensors are mounted, further incorporating mounting light source within an elongate slot extending the length of the mounting block, has all the features of claim 12.

Allowable Subject Matter

12. **Claim 9** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim 1 and an intervening claim 9.

Claim 9 recites "… a speed sensor for monitoring the speed of the laminar material_delivery machine system and said processor determines the pre-determined interval from the monitored speed…" which are features that are not anticipated nor obvious over the art of record. Accordingly, if the claims are amended as indicated above, and if rejected claims 1-8, 10-13, and 16 are cancelled, the application would be placed in a condition for allowance.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HEE-YONG KIM whose telephone number is (571)270-3669. The examiner can normally be reached on Monday-Thursday, 8:00am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on 571-272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/HEE-YONG KIM/
Examiner, Art Unit 2621

/Andy S. Rao/
Primary Examiner, Art Unit 2482
October 25, 2010